## **CLAIMS**

1. A method for the preparation of a compound of formula (I) or a pharmaceutically acceptable salt or solvate thereof:

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$$O = \bigvee_{N = 1 \text{ N}}^{NR^2R^3} S - R^1$$

$$(I)$$

in which

R<sup>1</sup> represents a C<sub>3</sub>-C<sub>7</sub> carbocyclic, C<sub>1</sub>-C<sub>8</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl or C<sub>2</sub>-C<sub>6</sub> alkynyl group, each of the groups being optionally substituted by one or more substituent groups independently selected from halogen atoms, -OR<sup>4</sup>, -NR<sup>5</sup>R<sup>6</sup>, -CONR<sup>5</sup>R<sup>6</sup>, -COOR<sup>7</sup>, -NR<sup>8</sup>COR<sup>9</sup>, -SR<sup>10</sup>, -SO<sub>2</sub>R<sup>10</sup>, -SO<sub>2</sub>NR<sup>5</sup>R<sup>6</sup>, -NR<sup>8</sup>SO<sub>2</sub>R<sup>9</sup> or an aryl or heteroaryl group, both of which may be optionally substituted by one or more substituents independently selected from halogen atoms, cyano, nitro, -OR<sup>4</sup>, -NR<sup>5</sup>R<sup>6</sup>, -CONR<sup>5</sup>R<sup>6</sup>, -COOR<sup>7</sup>, -NR<sup>8</sup>COR<sup>9</sup>, -SR<sup>10</sup>, -SO<sub>2</sub>R<sup>10</sup>,

- -SO<sub>2</sub>NR<sup>5</sup>R<sup>6</sup>, -NR<sup>8</sup>SO<sub>2</sub>R<sup>9</sup>, C<sub>1</sub>-C<sub>6</sub> alkyl or trifluoromethyl groups; R<sup>2</sup> and R<sup>3</sup> each independently represent a hydrogen atom, or a C<sub>3</sub>-C<sub>7</sub> carbocyclic, C<sub>1</sub>-C<sub>8</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl or C<sub>2</sub>-C<sub>6</sub> alkynyl group, the latter four groups may be optionally substituted by one or more substituent groups independently selected from:
- (a) halogen atoms,  $-OR^4$ ,  $-NR^5R^6$ ,  $-CONR^5R^6$ ,  $-COOR^7$ ,  $-NR^8COR^9$ ,  $-SR^{10}$ ,  $-SO_2R^{10}$ , 20  $-SO_2NR^5R^6$ ,  $-NR^8SO_2R^9$ ;
  - (b) a 3-8 membered ring optionally containing one or more atoms selected from O, S, NR<sup>8</sup> and itself optionally substituted by C<sub>1</sub>-C<sub>3</sub>-alkyl or halogen; or
- (c) an aryl group or heteroaryl group each of which may be optionally substituted by one or more substituents independently selected from halogen atoms, cyano, nitro, -OR<sup>4</sup>, -NR<sup>5</sup>R<sup>6</sup>,
   -CONR<sup>5</sup>R<sup>6</sup>, -NR<sup>8</sup>COR<sup>9</sup>, -SO<sub>2</sub>NR<sup>5</sup>R<sup>6</sup>, -NR<sup>8</sup>SO<sub>2</sub>R<sup>9</sup>, C<sub>1</sub>-C<sub>6</sub> alkyl and trifluoromethyl groups;

 $R^4$  represents hydrogen,  $C_1$ - $C_6$  alkyl or a phenyl group the latter two of which may be optionally substituted by one or more substituent groups independently selected from halogen atoms, phenyl,  $-OR^{11}$  and  $-NR^{12}R^{13}$ 

R<sup>5</sup> and R<sup>6</sup> independently represent a hydrogen atom or a C<sub>1</sub>-C<sub>6</sub> alkyl or phenyl group the latter two of which may be optionally substituted by one or more substituent groups independently selected from halogen atoms, phenyl, -OR<sup>14</sup> and -NR<sup>15</sup>R<sup>16</sup>, -CONR<sup>15</sup>R<sup>16</sup>, -NR<sup>15</sup>COR<sup>16</sup>, -SONR<sup>15</sup>R<sup>16</sup>, NR<sup>15</sup>SO<sub>2</sub>R<sup>16</sup>

or

 ${\ensuremath{R^{5}}}$  and  ${\ensuremath{R^{6}}}$  together with the nitrogen atom to which they are attached form a 4- to

7-membered saturated heterocyclic ring system optionally containing a further heteroatom selected from oxygen and nitrogen atoms, which ring system may be optionally substituted by one or more substituent groups independently selected from phenyl, -OR<sup>14</sup>, -COOR<sup>14</sup>, -NR<sup>15</sup>R<sup>16</sup>, -CONR<sup>15</sup>R<sup>16</sup>, -NR<sup>15</sup>COR<sup>16</sup>, -SONR<sup>15</sup>R<sup>16</sup>, NR<sup>15</sup>SO<sub>2</sub>R<sup>16</sup> or C<sub>1</sub>-C<sub>6</sub> alkyl, itself optionally substituted by one or more substituents independently selected from halogen atoms and -NR<sup>15</sup>R<sup>16</sup> and -OR<sup>17</sup> groups;

 $R^{10}$  represents a hydrogen atom or a  $C_1$ - $C_6$ -alkyl or a phenyl group, the latter two of which may be optionally substituted by one or more substituent groups independently selected from halogen atoms, phenyl,  $-OR^{17}$  and  $-NR^{15}R^{16}$ ; and

each of  $\mathbb{R}^7$ ,  $\mathbb{R}^8$ ,  $\mathbb{R}^9$ ,  $\mathbb{R}^{11}$ ,  $\mathbb{R}^{12}$ ,  $\mathbb{R}^{13}$ ,  $\mathbb{R}^{14}$   $\mathbb{R}^{15}$ ,  $\mathbb{R}^{16}$ ,  $\mathbb{R}^{17}$  independently represents a hydrogen atom

20 or a  $C_1$ - $C_6$  alkyl, or a phenyl group.

which method comprises contacting

$$O = \bigvee_{N = 100}^{100} \bigvee_{N = 100}^{100} S - R^{1}$$

25 wherein L is a leaving group with a thiazole nitrogen protecting group reagent under appropriate reaction conditions to form a compound of the formula WO 2005/056563 PCT/GB2004/005072 - 21 -

$$O = \bigvee_{\substack{N \\ PG}} \bigvee_{N} \bigvee_{S-R^1} \bigvee_{III}$$

wherein PG is a protecting group,

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5 reacting the compound of formula III with an amine of formula HNR<sup>2</sup>R<sup>3</sup> to form a compound of formula

$$O = \bigvee_{N = 1 \text{ N}}^{N} \bigvee_{N = 1 \text{ N}}^{N} S = R^{1}$$

and deprotection of the compound of formula II to give a compound of the formula I, and
10 simultaneous or sequential conversion to a pharmaceutically acceptable salt or solvate thereof.

- 2. A method as claimed in claim 1 and wherein R<sup>1</sup> represents an optionally substituted benzyl group.
- 15 3. A method as claimed in claim 1 or claim 2 and wherein one of  $R^2$  or  $R^3$  is hydrogen and the other is  $C_1$ - $C_8$  alkyl substituted by hydroxy and one or more methyl or ethyl groups.

4. A method as claimed in claim 1 for the preparation of compounds of the formula Ia

Ia

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wherein each  $R^X$  is independently selected from hydrogen, a  $C_{1\cdot4}$  alkyl group optionally substituted by hydroxy, amino, -O- $C_{1\cdot4}$  alkyl, -S- $C_{1\cdot4}$  alkyl, -N- $C_{1\cdot4}$  alkyl, -NHSO<sub>2</sub>R, or -CONR<sub>2</sub> and provided that both  $R^X$  are not hydrogen or amino.

- 10 5. A method as claimed in claim 1 wherein each R<sup>X</sup> is independently selected from hydrogen and hydroxymethyl, provided that both R<sup>X</sup> are not hydrogen.
  - 6. A compound of the formula

$$O = \bigvee_{\substack{N \\ PG}} \bigvee_{N} \bigvee_{S-R^1} S-R^1$$

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or a pharmaceutically acceptable salt or solvate thereof and wherein PG,  $R^2$ ,  $R^3$  and  $R^1$  have the meanings stated in claim 1.

## 7. A compound of the formula

$$O = \bigvee_{\substack{N \\ PG}} \bigvee_{N} \bigvee_{S-R^1} \bigvee_{III}$$

5 or a pharmaceutically acceptable salt or solvate thereof and wherein PG, L and R<sup>1</sup> have the meanings stated in claim 1.

## 8. A compound of the formula

$$O = \bigvee_{N = 10}^{L} \bigvee_{N = 10}^{N} S = R^{1}$$

$$IV$$

or a pharmaceutically acceptable salt or solvate thereof and wherein L is a leaving group other than chlorine and  $R^1$  has the meaning stated in claim 1.

## 15 9. A compound of the formula

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 $\mathbf{v}$ 

or a pharmaceutically acceptable salt or solvate thereof and wherein R<sup>1</sup> has the meaning stated in claim 1.

- 10. A compound selected from
- 5 5-[[(2,3-difluorophenyl)methyl]thio]-7-[[(1R)-2-hydroxy-1-methylethyl]amino]thiazolo[4,5-d]pyrimidin-2(3H)-one, potassium salt;
  - $5-[[(2,3-\mathrm{difluorophenyl})\mathrm{methyl}]\mathrm{thio}]-7-[[2-\mathrm{hydroxy-1-(hydroxymethyl})-1-\mathrm{methylethyl}]\mathrm{amino}]\mathrm{thiazolo}[4,5-d]\mathrm{pyrimidin-2}(3\mathrm{H})\mathrm{-one, sodium salt; and}$
  - 5-[[(2,3-difluor ophenyl)methyl]thio]-7-[[2-hydroxy-1-(hydroxymethyl)-1-(hydroxyme
- 10 methylethyl]amino]thiazolo[4,5-d]pyrimidin-2(3H)-one, potassium salt.